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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,211	02/27/2004	Richard Kellerman	NIEL-0001-100 142555	9097

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COZEN O'CONNOR, P.C.
1900 MARKET STREET
PHILADELPHIA, PA 19103-3508

EXAMINER	
CYGAN, MICHAEL T	
ART UNIT	**PAPER NUMBER**
2855	

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,211	KELLERMAN ET AL.	
	Examiner	Art Unit	
	Michael Cygan	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,11-20 and 22-40* is/are rejected.

7)☒ Claim(s) *8,10 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4, 6, 12, 13, 16-19, 22-26 and 28-30, 33-36, 38, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Groeninger (US 5,189,902). Groeninger discloses the claimed invention, a relative humidity sensor comprising a chamber having a volume and opening, the opening being covered by a liquid impermeable membrane [102] and sealed by an o-ring [106], humidity sensor [112a,112b], interior temperature sensor [114a,114b], exterior temperature sensor (exterior to the cavity holding the humidity and other temperature sensor, and producing a signal "related" to the temperature of the mixture since the sensor is not completely thermally isolated from the exterior) [114b], wherein temperature and humidity readings are used to calculate relative humidity by a computer [500]. See entire document, especially Figures 1, 2, and 5; column 3 line 35 through column 4 line 66; column 7 lines 24-60; and columns 9-11. Internal surfaces are made of nonabsorbent metal (stainless steel membrane 102, metal holder 136, solder

on circuit board 146, and aluminum ring 111). The membrane is lined with a microporous Gore-Tex (hydrophobic polymeric) layer; see column 3 lines 54-61). Humidity sensor [112a,b] and temperature sensor [114a] are located on a printed circuit board [146]. The chamber is cylindrically shaped (Figure 2). The circuit board is constructed with nonadsorbent solder (inherently silver, tin or lead) (column 4 lines 46-47). The method of using the above invention is also disclosed.

2. Claims 1-3, 6, 7, 11-13, 16, 22-25, 33-35, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Campbell (US 5,816,704). Campbell discloses the claimed invention, a relative humidity sensor comprising a chamber having a volume and opening, the opening being having a breather hole covered by a liquid impermeable Gortex (polymeric hydrophobic) membrane [102], the chamber being non-water absorbing (column 8 lines 45-48), a first temperature sensor [90] located within the chamber and on the same substrate as a humidity sensor [88], a second temperature sensor [121] located outside the chamber, wherein temperature and humidity readings are used to calculate relative humidity by a pc [119], where the sensor chamber could inherently be held by a hand, and a method for using the device for yielding relative humidity.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 4, 5, 14, 15, 19, 20, 26, 27, 30-32, 36, 37, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell (US 5,816,704). Campbell teaches the claimed invention except for use of particular metals, particular chamber volume size, and matched thermistors.

With respect to use of particular metals, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a particular metal, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use, because metals are well known and inexpensive housing materials satisfying the non-adsorption criteria of Campbell. *See In re Leshin*, 125 USPQ 416.

With respect to a particular chamber volume, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a volume in the claimed range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to thermistors, thermistors are of notorious use in the temperature sensing art, and would be an obvious equivalent to the disclosed thermopile or thermocouple sensors of Campbell, since thermistors have well established utility and properties.

With respect to matched temperature sensors, such matching is old in the art of temperature sensing, and is of such notorious character that such use would have been obvious to one having ordinary skill in the art, since matching produces the well known advantage of exact temperature compensation without need for calibration coefficients.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell (US 5,816,704) in view of Groeninger (US 5,189,902). Campbell teaches the claimed invention except for an o-ring seal. Groeninger teaches the use of an o-ring seal [106] for a vapor permeable membrane. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an o-ring as taught by Groeninger in the invention taught by Campbell to seal the membrane, since Groeninger teaches that such a configuration provides an acceptable liquid-impermeable seal.

Allowable Subject Matter

5. Claims 8, 10, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 15 August 2005 have been fully considered but they are not persuasive.

With respect to the rejections based upon Groeninger, applicant argues that Groeninger's second temperature sensor is not outside a cavity (actually, a chamber) as claimed. Looking to claim 1, the chamber is defined as having a chamber volume, an opening covered by a water-impermeable membrane, and holding therein a humidity and a temperature sensor, but not a second temperature sensor. Applicant viewed Figure 1 of Groeninger as having a chamber having each of the above elements and also including the second temperature sensor, since Groeninger describes all of the sensors as being within a cavity of the sensor. However, it does not thereby follow that the claimed chamber must correspond only the "cavity" of Groeninger. Figure 2 shows that the second temperature sensor is isolated from a "chamber" which is shown to have a chamber volume, an opening covered by a water-impermeable membrane, and holding therein a humidity and a temperature sensor.

Since claims must be given their broadest reasonable interpretation, the part of Groeninger's sensor above the circuit board 146 must be interpreted as the "chamber" as set forth in the claims, since that "chamber" possesses each element which the

claims define as the "chamber". Furthermore, since the heater 116 is at times used to heat sensor 114b in order to bring the readings of 114a and 114b into balance, the temperature sensors 114a and 114b cannot be an identical temperature environment—114b is sensing the temperature outside the "chamber" comprising 114a and the humidity sensor. Therefore, Groeninger anticipates the listed claims.

With respect to the rejections based upon Campbell, applicant argues that the exterior sensor 704 does not play a part in the calculations of the "relative humidity of the mixture at the point exterior to the chamber" as claimed. However, the exterior T sensor is for exactly that purpose. As discussed at column 12 lines 1-28, for high humidity applications the interior temperature may be adjusted to vary from the exterior temperature. The humidity sensed by the interior chamber is therefore related to the temperature of the interior chamber (since dew point sensing relates the temperature of a surface to the humidity of the air contacting the surface). Since the dew point measurement interior to the chamber yields a measurement of the humidity inside the chamber (at the temperature inside the chamber), the exterior temperature must be used to correlate the interior readings to the exterior readings. This is shown by the nature of dew point measurements as set forth at column 10 lines 1-23, and the recitation of sensor 704 being connected to the pc board 119 which performs the humidity calculations. Therefore, Campbell anticipates the listed claims.

Applicant additionally argues that applicant's invention has additional advantages to Campbell; however, in response to applicant's argument that the references fail to

show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MICHAEL CYGAN, PH.D.
PRIMARY EXAMINER